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United States Patent [19]**Dumont****[11] Patent Number: 5,437,346****[45] Date of Patent: * Aug. 1, 1995**

[54] STATION FOR PRICE SCANNING
VERIFYING AND SELECTIVELY BAGGING
PURCHASE ITEMS

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[*] Notice: The portion of the term of this patent
subsequent to Sep. 6, 2011 has been
disclaimed.

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[51] Int. Cl. 6 A47F 9/04

[52] U.S. Cl. 186/61; 186/66

[58] Field of Search 186/61, 66; 235/383

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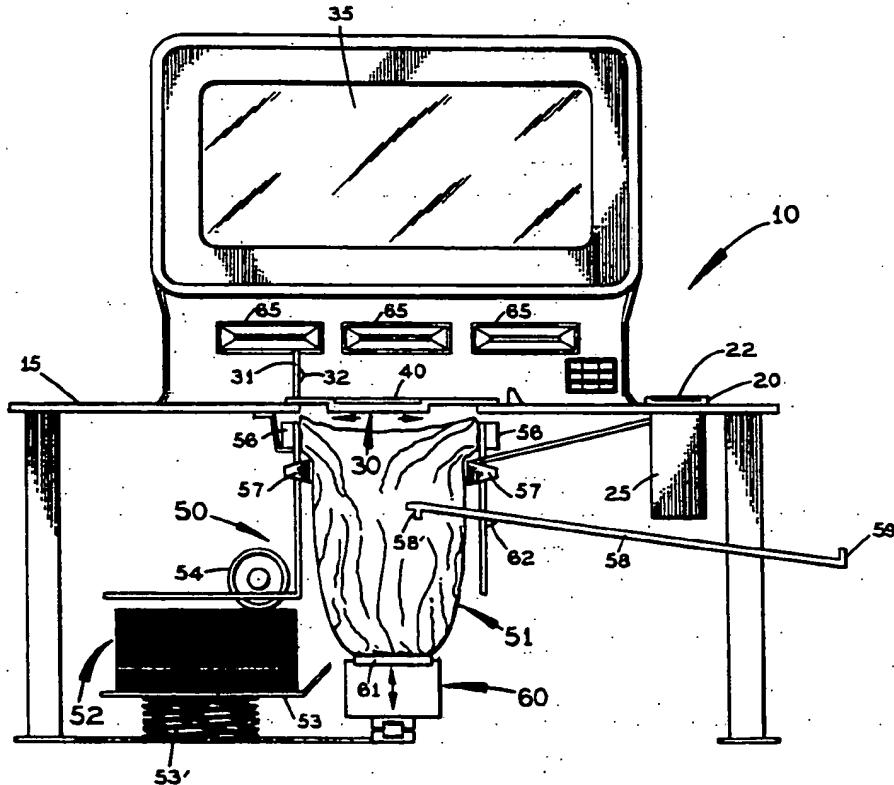
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Attorney, Agent, or Firm—Oltman and Flynn

[57] ABSTRACT

To be used with a purchase monitoring device which is utilized to scan a bar code of an item to be purchased and obtain store and purchase information relative to the item to be purchased, a purchase checkout station which has a monitor cradle to receive the purchase monitoring device in data transmitting communication with a data transmission connector within the monitor cradle such that the purchase and pricing information regarding the items to be purchased can be transmitted to the purchase checkout station for totalling and storage. The purchase checkout station including a verification platform whereon each item to be purchased is individually placed and verified as an item which has been scanned and whose pricing and purchase information has been transmitted to the checkout station, whereafter the verification platform is moved to an open position enabling the verified item to be purchased, and only that item, to be placed into an automatically positioned and opened bag which receives a predetermined quantity of items to be purchased therein and is sealed for secured removal by the consumer subsequent to payment.

14 Claims, 3 Drawing Sheet



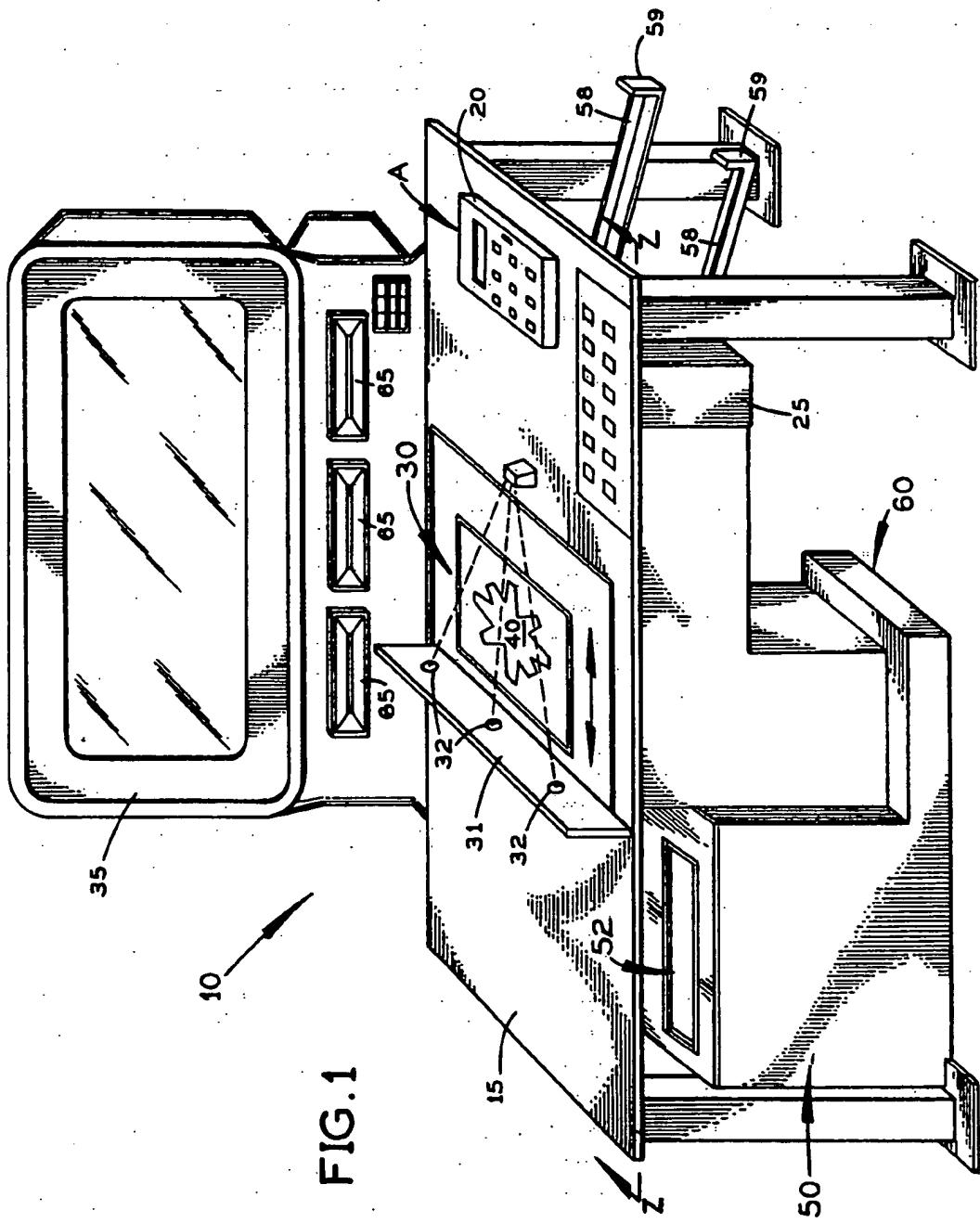
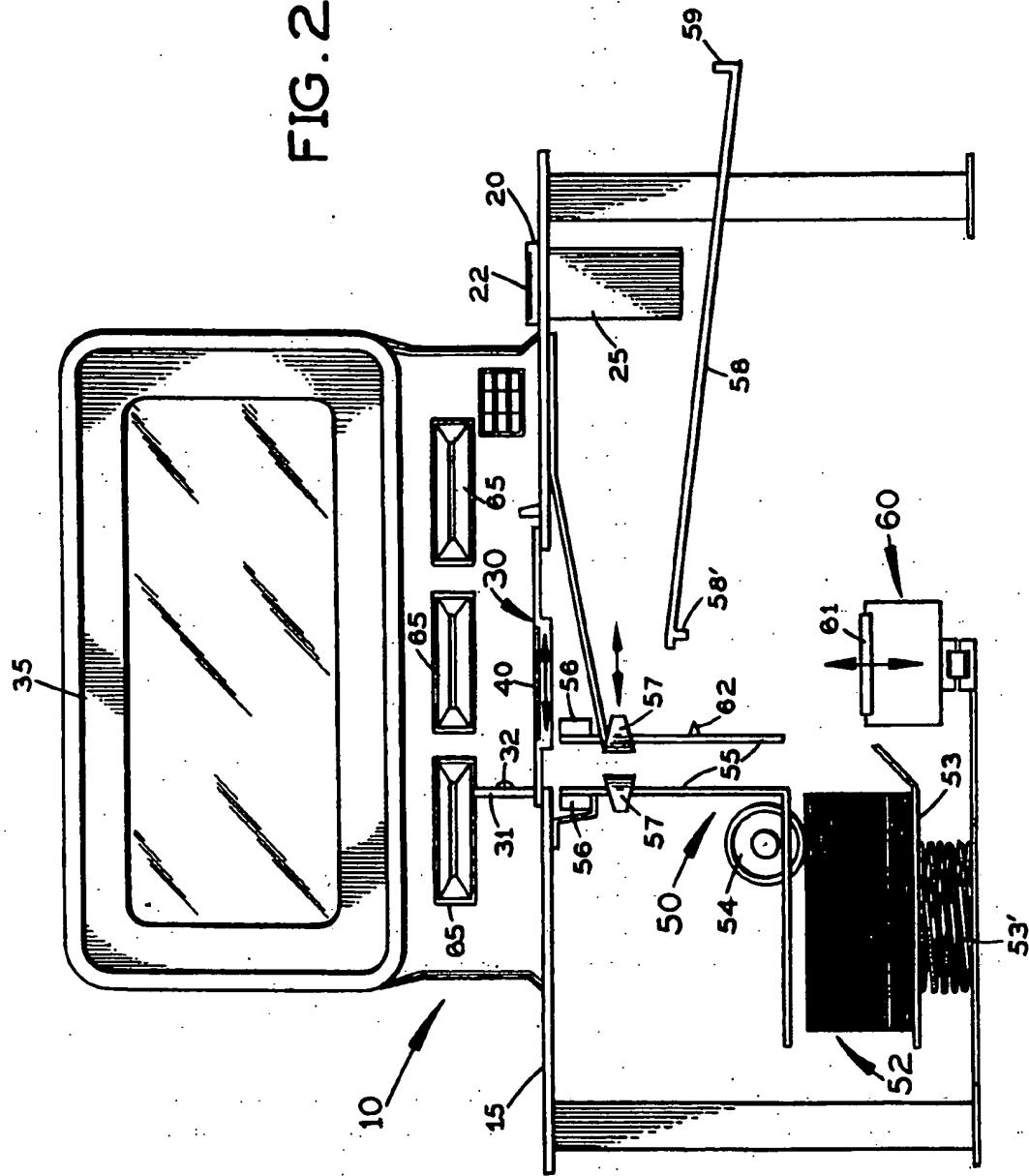


FIG. 1

FIG. 2



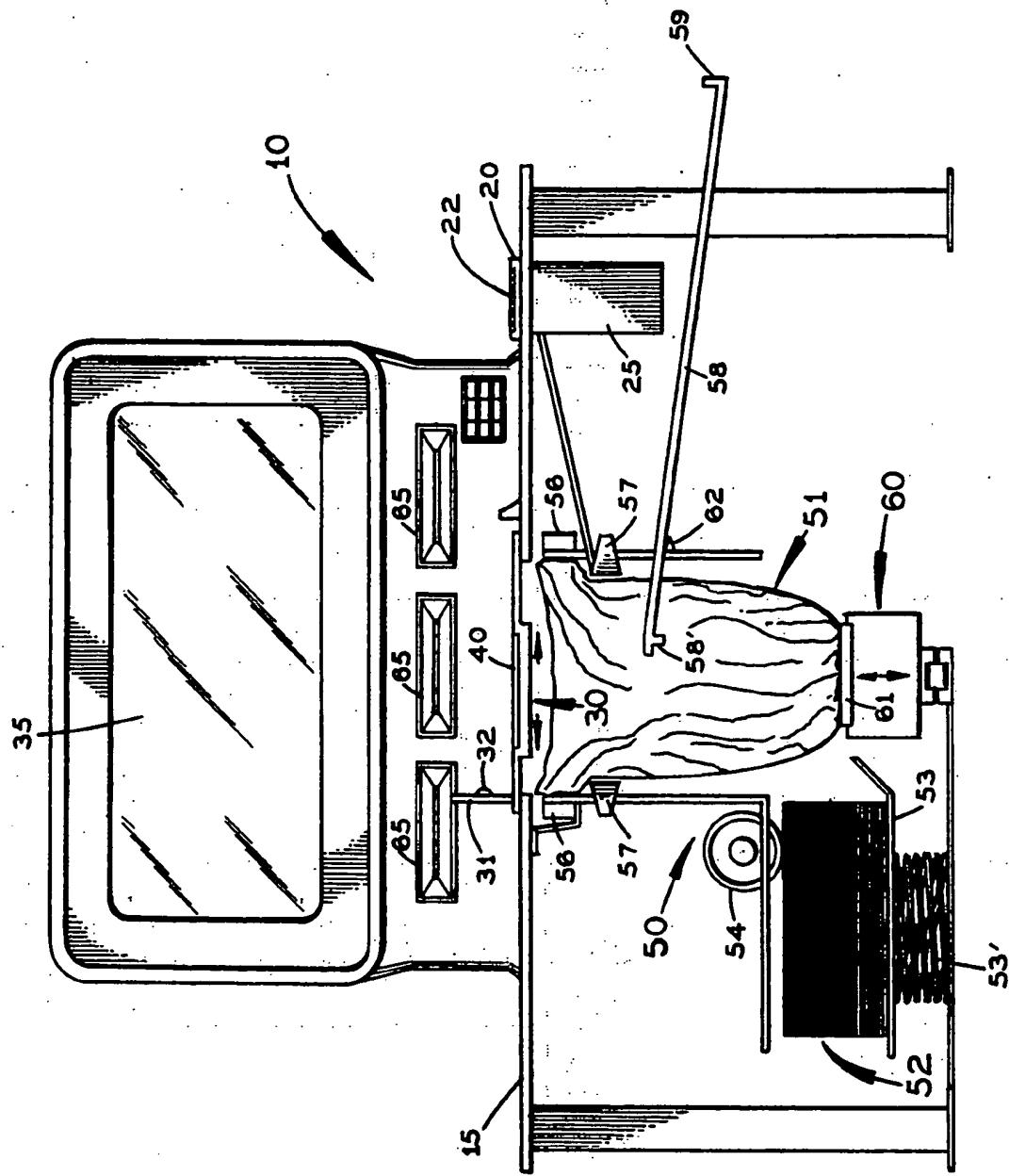


FIG. 3

**STATION FOR PRICE SCANNING VERIFYING
AND SELECTIVELY BAGGING PURCHASE
ITEMS**

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a purchase checkout station to be utilized with a portable purchase monitoring device so as to enable consumers at a self-service store to shop independently and quickly, and easily checkout their purchase items themselves while assuring that maximum security is maintained in the store.

2. Description of the Related Art

Conventional checkout stations in most self-service stores involve the individual scanning of each product brought to the checkout station by the consumer. Specifically, a consumer will gather all items they desire to purchase, place them on the checkout station on a conveyor or like movable surface where they are presented to a store employee who takes each item selected by the consumer and scans its bar code. While these procedures are substantially improved over what was previously necessitated, namely the numeric entry of the price of each item by the store employee, this conventional type of checkout can still be quite time-consuming. Further, because it is the bar code of each item which designates the price, it can often be difficult for a consumer to identify the specific price of an item which no longer needs to be marked by a separate price indicator sticker. Accordingly, and due to the advent of inventions which enable consumers to independently scan items to be purchased, there is a need for an improved checkout station which can utilize the increased efficiency of allowing a consumer to scan items themselves, while ensuring efficient checkout and store security.

The checkout station of the present invention is adapted specifically to allow for the increased consumer independence, and to eliminate limits on checkout volume which relate to the need for having a store employee at each checkout station, and thus overcomes many of the problems associated with the related art.

SUMMARY OF THE INVENTION

The present invention is directed towards a purchase checkout station, preferably for use with a purchase monitoring device which is utilized to scan a bar code of an item to be purchased and obtain store pricing and purchase information relative to the item to be purchased, by an individual consumer shopping within a self-service store. Included as part of the checkout station is a monitor cradle wherein the purchase monitoring device is received and held subsequent to its being used to scan varying items to be purchased by a customer. Within the monitor cradle is a data input connection. The data input connection is positioned in information receiving and transmitting communication with a data transmission connector of the purchase monitoring device such that the checkout station and the purchase monitoring device can communicate with one another. In particular, the data input connection will receive pricing and purchase information relative to the items to be purchased from the purchase monitoring device and direct the information to data processing means of the purchase checkout station wherein the pricing and purchase information of all of the items to be purchased are stored and totaled. To enable a consumer to see the pricing and purchase information of all of the items to

be purchased and scanned by them, display means are included with the purchase checkout station. The display means will display pricing totals and purchase information for convenient access and verification by a consumer. Preferably centrally disposed on the checkout station is a verification platform. The verification platform is adapted to receive each of the items to be purchased individually thereon. While on the verification platform, each of the items to be purchased is checked by verification means which ensure that the item to be purchased which has been placed on the verification platform has been previously scanned by the purchase monitoring device to identify and store the purchase and pricing information relative to the item to be purchased in the purchase monitoring device, and that the pricing and purchase information relative to the item has been transmitted from the purchase monitoring device to the data processing means. Once appropriate scanning is verified, bagging means position an empty bag in an open position such that the bag will receive the item to be purchased, and only that item, therein from the verification platform. Further, only upon positive verification of the item to be purchased by the verification means will the item to be purchased be slid into the open bag. A number of the verified items are put into the bag, until a predetermined quantity of the items to be purchased have been disposed within the bag and a new grocery bag must be utilized and automatically dispensed into the open, receiving position.

It is an object of the present invention to provide an improved purchase checkout station for use directly by a consumer so as to checkout purchase items such as groceries without the need for a store attendant.

Still another object of the present invention is to provide a purchase checkout station which a consumer can individually use with a purchase monitoring device that scans bar codes of items to be purchased.

Yet another object of the present invention is to provide a purchase checkout station which does not require a store employee to operate, yet which will ensure that security precautions are maintained and that only verified, scanned items will be bagged or removed from the store.

A further object of the present invention is to provide a purchase checkout station which will automatically bag items to be purchased.

An additional object of the present invention is to provide a checkout station which is substantially small and compact, thereby enabling a large number of the checkout stations to be disposed throughout a self-service store.

Another object of the present invention is to provide a checkout station whose use is not limited to the availability of a store employee to expressly operate the station.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature of the present invention, reference should be had to the following detailed description taken in connection with the accompanying drawing in which:

FIG. 1 is a front perspective view of the checkout station of the present invention;

FIG. 2 is a side cross-sectional view along line Z—Z of FIG. 1 illustrating a bag dispensing position;

FIG. 3 is a side cross-sectional view along line Z—Z of FIG. 1 illustrating an item receiving position;

Like reference numerals refer to like parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Shown in the Figures, the present invention is directed towards a checkout station generally indicated as 10. The checkout station 10 is adapted for use with a purchase monitoring device A which is utilized to scan the bar code of individual items to be purchased and designate the scanned items as purchase items. The particular construction of the illustrated purchase monitoring device A, although not particularly germane to the present invention, can be shown as described in detail in the previously filed, now allowed U.S. patent application Ser. No. 08036,970, and filed on Mar. 25, 1993, now U.S. Pat. No. 5,345,071 the disclosure of which is incorporated herein by reference. The checkout station 10 includes preferably a substantially, small compact platform 15 such that the checkout station 10 will not take up excessive space and can be conveniently disposed throughout a self-service store such as a grocery store. Formed within the platform 15 is monitor cradle 20. The monitor cradle 20 is sized to correspond the dimensions of the purchase monitoring device A so as to receive and hold the purchase monitoring device A snugly therein during checkout. Disposed within the recess of the monitor cradle 20 is a data input connection 22. This data input connection 22 is preferably in the form of a toothed electrical contact and is positioned within the monitor cradle 20 so as to be in information receiving and transmitting communication with a data transmission connector of the purchase monitoring device A disposed within the monitor cradle 20. Accordingly, the data input connector 22 can receive pricing and purchase information relative to the items to be purchased from the purchase monitoring device A. In particular, the purchase monitoring device A scans the bar code of individual items sought to be purchased by a consumer and stores pricing and purchase information regarding the items therein so as to keep a running total of the cost of the items to be purchased by the consumer. Upon connection of the purchase monitoring device A within the monitor cradle 20, the purchase and pricing information regarding only the items which have been scanned by the consumer as purchase items and accordingly preferably designated as purchase items by the purchase monitoring device A are inputted into the checkout station through the data input connection. The information is transmitted to data processing means within the checkout station 10 which store and total the pricing and purchase information of all of the items to be purchased.

Conveniently disposed atop a checkout station 10 are display means preferably in the form of a monitor 35. This monitor 35 will display the pricing and purchase information regarding each of the items to be purchased and the pricing totals regarding all of the items to be purchased conveniently to the user. Specifically, a running total of each item as it is placed on the checkout station can be maintained along with a correlating checklist where each item to be purchased, as it placed on the checkout station 10, is referenced and checked off the total list of items to be purchased as scanned by the purchase monitoring device A and transmitted to the checkout station 10. Also, an indication as to a preferred packaging order of items can be displayed to

facilitate bagging, or other informational or advertising materials can be displayed.

When checking out, a consumer who goes to the checkout station 10 and inserts the purchase monitoring device A into the monitor cradle 20 will then proceed to place each item to be purchased individually on the platform 15, one item at a time. In particular, the platform 15 includes a centralized verification platform 30 whereon each item to be purchased is individually placed. Preferably, this verification platform 30 will be in the form of a single panel which is slidably mounted within the main platform 15. This verification platform 30 will be moveable between an open position and a closed position, the open position allowing access beneath the verification platform 30. Additionally, a stopper panel 31 is positioned above the verification platform 30. The stopper panel 31 is positioned such that the verification platform 30 will slide thereunder when moving from its normally closed position to the open position. Accordingly, as the verification platform 30 slides the item to be purchased placed on the verification platform 30 will contact the stopper panel 31 and slide off of the verification platform 30. Alternatively, the verification platform 30 can include the single panel or a pair of abutting panels which are slidably disposed in the platform 15 or are hingedly secured to the main platform 15 such that they pivotally slope downward upon movement from the closed position to the open position, thereby sliding the item to be purchased downwardly.

Initially, when the verification platform 30 is in its closed position, an individual item to be purchased is disposed thereon where it is checked by verification means 40. The verification means 40, which can be vertically positioned on the checkout station 10, are preferably positioned within the surface of the verification platform 30. In any event, the verification means 40 must be positioned in a location where it can check the area on the verification platform 30 and ensure that the item to be purchased which has been placed atop the verification platform 30 has in fact been scanned with the purchase monitoring device A so as to store the purchase and pricing information relative to the item to be purchased within the purchase monitoring device A. The verification means 40 also verifies that the pricing and purchase information relative to the item on the verification platform 30 has been transmitted from the purchase monitoring device A to the data processing means of the checkout station 10. Preferably, the verification means 40 will correspond purchase designation means of the purchase monitoring device A. Specifically, the purchase monitoring device A, upon scanning an item as a purchase item, will designate that item as a purchase item. This designation can be in the form of visible ink marks on the item to be purchased, magnetic encoding on the item to be purchased, or any other suitable marking means. In such a case, the verification means 40 will preferably be in the form of a reader adapted to check for the presence of the appropriate designation as marked by the purchase monitoring device A, such that only upon the verification of the appropriate purchase designation will the verification platform 30 be allowed to move to its open position allowing the item to be purchased to slide there beneath. Alternatively, the verification means 40 can be in the form of a bar code scanner which will re-scan the item and ensure that it has been entered by way of the purchase monitoring device A.

Once the item to be purchased on the verification platform 30 has been properly identified as an entered and scanned purchase item, the verification platform 30 will move to its open position such that only the single item verified on the verification platform 30 falls there beneath and into an open, empty bag 51 disposed preferably directly under the verification platform 30. Assurance that only one item was on the verification platform 30 can be achieved either through the verification means 40 which can be structured to check for multiple items or the replacement of an item on the verification platform 30 subsequent to its verification, or alternatively, can be achieved by checking the items as they enter the bag 51, as will be discussed subsequently. Further, the stopper panel 31 can include a number of photocells 32 therein which ensnare the area over the verification platform 30 after an item has been placed on the verification platform 30, thereby detecting if an additional item is placed or substituted on the platform 30 after verification and during movement of the verification platform 30. Such a photocell system could also detect a person's hand reaching into the opening beneath the platform 30 and cause a security panel to slide into place or otherwise necessitate re-scanning of an item.

As stated, once the item to be purchased has been appropriately verified, the verification platform 30 will move to its open position and the item to be purchased, and only that item will slide into the bag 51 disposed beneath the verification platform 30. The bag 51, which is preferably a plastic grocery type bag is disposed in its open position by bagging means 50 which are structured and move the empty bag 51 to an open position beneath the verification platform 30 where it will receive a number of the items to be purchased therein until a predetermined, maximum quantity of items to be purchased have been disposed within the bag 51. Preferably, the bagging means 50 include a bag reserve 52 wherein a plurality of empty bags are disposed awaiting use. These reserve bags 52 can be positioned on tracks which run along the length of the platform 15 or 40 stacked within a bag bin 53 which uses a spring 53' to upwardly urge the stack of bags into dispensing position. Upon the bag 51 being filled and removed from beneath the verification platform 30, automatic dispensing means of the bagging means 50 draws a new bag 45 from the bag reserve into position beneath the verification platform 30 in the open position such that further items to be purchased can be received for bagging. Although the bag dispensing means can be structured in a variety of ways, such as utilizing hooks, adhesives and the like to pull a bag to the open position and/or beneath the platform 15, the preferred automatic dispensing means will include a number of rollers 54 which pull a single bag from the bag reserve 52 up through a guide track 55 where suction members 56 adhere to a top edge 55 of each side of the bag 51 moving the bag beneath the verification platform 30 and opening the bag.

In order to ensure that the items do not fall too abruptly into the bag 51, load shock absorption means preferably in the form of a movable, cushioned platform 60 are disposed beneath the open bag 51. This movable platform 60, which begins in an elevated position near a top of the bag 51, is disposed along a bottom of the bag 51 such that upon the first of the items to be purchased sliding beneath the verification platform 30 into the bag 51, the item will have to slide only a short distance to the bottom of the bag 51. Subsequently, and upon a greater quantity of items being inserted into the bag 51,

the platform 60 will gradually lower until finally the predetermined quantity of items to be purchased have been positioned within the grocery bag 51. This platform can lower either through the weight of item in the bag 51 or through sensors which determine the entry of an item into the bag 51, and can utilize scissor members, a hydraulic lift member, or any other suitable means to provide the necessary supporting elevation.

To detect when the predetermined quantity of verified items to be purchased has been positioned within one of the bags 51, the bagging means 50 includes bag load checking means. Preferably, these bag load checking means are in the form of a scale 61 disposed within the movable platform 60, the scale 61 measuring the weight of items within the bag so as to compare it to a maximum weight capacity of the bag which corresponds the predetermined quantity of verified items to be purchased which can be positioned in the bag 51. Additionally, or alternatively, the bag load checking means can be in the form of an optic fill height meter 62 which emits a sensor through a preferably transparent bag 51 so as to measure a height of items in the bag 51 and detect when a maximum height capacity of the bag 51, which corresponds the predetermined quantity of verified items to be purchased which can be disposed within the bag 51, is reached.

In addition to functioning as load checking means, the scale 61 can also function to provide additional safety and ensure that only the appropriate item is inserted into the bag 51. This is accomplished by using the scale 60 to detect incremental weight increases of items disposed within the bag 51. Specifically, utilizing the scale 61, if the weight increase of weight into the bag 51 does not correspond the weight of the item to be purchased as verified utilizing the verification means 40 and scanned by the purchase monitoring device A, an indication that an illegal substitution has been made can be provided.

Once the bag load checking means have indicated that the particular bag 51 beneath the verification platform 30 is full, bag sealing means are preferably utilized to close the grocery bag 51. These bag sealing means are preferably be in the form of heat panels 57 which sandwich an upper portion of the grocery bag 51, preferably beneath the suction members or other means whereby the bag is supportably held in the open position, therebetween to provide a heat seal at the top of the grocery bag 51. Alternative sealing means, however, such as adhesives, staples, clips or like means known in the art could also be utilized. In the case of the sealing means, it is important that once the bag 51 has been sufficiently filled, the bag 51 is sealed in such a manner that if opened, it will be noticeable. This seal serves as an added security measure to ensure that a consumer does not insert items which have not been scanned or paid for into the bag 51 subsequent to checkout. Also, the sealing means can also serve to cut the bag and release it from its held position beneath the verification platform. Specifically, each bag 51, upon movement to the open position beneath the verification platform 30 by the automatic dispensing means, will either through its own handle openings or other holding means 58' such as hooks, clips, graspers, or any like holding means known in the art, engage and be held on a pair of elongate, downwardly sloped tracks 58 which run along a length of the platform. Accordingly, once the bag 51 has been filled and sealed, removal means of the bagging means will move the filled bag along the

tracks 58 which terminate in a pair of receptacle handles 59 where the bag 51 is conveniently disposed for gathering by the user. At that point a new bag will be drawn from the bag reserve 52 and positioned beneath the verification platform 30 in its open position.

Also included on the checkout station 10 are payment means 65. These payment means 65 can be in the form of a normal ATM card receiver wherein a user enters an ATM card and using a numeric key pad enters a secret code; and/or can include a cash receiver which can receive bills of certain denominations and otherwise provide change to a user. It is also contemplated that a form of check reader and receiver can be incorporated to allow payment by checks.

As added security, and in order to maintain control over the purchase monitoring devices A dispensed within the store, the monitor cradle 20 includes a monitor receptacle 25 there beneath which can store a quantity of the purchase monitoring devices A subsequent to their use and positioning within the monitor cradle 20. Specifically, the monitor cradle 20 can include a hinged bottom wherein subsequent to transmission of the pertinent purchase and pricing information from the purchase monitoring device A to the checkout station 10, the hinged bottom of the monitor cradle 20 will open allowing the portable purchase monitoring device A to drop beneath the monitor cradle 20 and into the monitor receptacle 25.

The specific mechanisms as described herein illustrate merely the preferred embodiment of the checkout station at the time of application. It is contemplated that variations consistent with the claimed invention fall within the scope of the claims as written and contemplated by the doctrine of equivalents.

Now that the invention has been described,
I claim:

1. To be used with a purchase monitoring device which is utilized to scan a bar code of an item to be purchased and obtain and store pricing and purchase information relative to the item to be purchased, a purchase checkout station comprising:
a monitor cradle structured and disposed to receive and hold the purchase monitoring device,
said monitor cradle including a data input connection disposed in information receiving and transmitting communication with data transmission connector of the purchase monitoring device,
said data input connection structured and disposed to receive the pricing and purchase information relative to the items to be purchased from the purchase monitoring device,
data processing means structured and disposed to store and total the pricing and purchase information of all of the items to be purchased,
display means structured and disposed to display the pricing and purchase information regarding the items to be purchased and the pricing totals regarding all of the items to be purchased to a user,
a verification platform structured and disposed to receive each of the items to be purchased individually thereon,
verification means structured and disposed to verify that the item to be purchased placed on said verification platform has been scanned with the purchase monitoring device so as to store the purchase and pricing information relative to the item to be purchased in the purchase monitoring device, and
that the pricing and purchase information relative

to the item has been transmitted from the purchase monitoring device to the data processing means, bagging means structured and disposed to position an empty bag in an open position such that it will receive the item to be purchased, and only that item, therein from said verification platform, upon positive verification of the item to be purchased by said verification means, said bagging means being further structured to enable only a predetermined quantity of said items to be purchased to be disposed in said bag.

2. A purchase checkout station as recited in claim 1 wherein said bagging means includes bag sealing means structured and disposed to seal the bag in a closed position subsequent to said predetermined quantity of said verified items to be purchased being positioned in the bag.

3. A purchase checkout station as recited in claim 2 including a stopper panel structured and disposed to slide said verified items to be purchased from said verification platform into said bag.

4. A purchase checkout station as recited in claim 3 wherein said verification platform is slidably disposed above said open bag such that upon slided movement of said verification platform beneath said stopper panel, said item to be purchased on said verification platform will contact said stopper panel and slide off of said verification platform into said bag upon continued slided movement of said verification platform beneath said stopper panel.

5. A purchase checkout station as recited in claim 4 wherein said verification means are disposed in said verification platform.

6. A purchase checkout station as recited in claim 1 wherein said bagging means includes:

a bag reserve structured and disposed to contain a plurality of empty bags,
automatic dispensing means structured to position one of said empty bags from the bag reserve to said open, item receiving position beneath said verification platform, and
removal means structured and disposed to move a full one of the bags from beneath the verification platform to a dispensing position.

7. A purchase checkout station as recited in claim 6 including bag sealing means structured and disposed to seal the bag in a closed position subsequent to said predetermined quantity of said verified items to be purchased being positioned in the bag.

8. A purchase checkout station as recited in claim 2 including bag load checking means structured and disposed to detect when said predetermined quantity of verified items to be purchased have been positioned in one of the bags and direct said bag sealing means to seal the bag.

9. A purchase checkout station as recited in claim 8 wherein said bag load checking means includes a scale disposed beneath the bag under said verification platform; said scale measuring a weight of items in the bag and detect when a maximum weight capacity of the bag, which corresponds said predetermined quantity of verified items to be purchased, is reached.

10. A purchase checkout station as recited in claim 8 wherein said bag load checking means includes an optic fill height meter structured and disposed to measure a height of items in the bag and detect when a maximum height capacity of the bag, which corresponds said

predetermined quantity of verified items to be purchased, is reached.

11. A purchase checkout station as recited in claim 8 including load shock absorption means structured and disposed to cushion positioning of said verified items to be purchased in the bag.

12. A purchase checkout station as recited in claim 11 pg.26 wherein said load shock absorption means includes a cushioned, vertically moveable platform which is elevated to lift a bottom of the bag upward towards said verification platform, and gradually lower as said items to be purchased are slidingly positioned into said bag from said verification platform.

13. A purchase checkout station as recited in claim 1 including a monitor receptacle beneath said monitor cradle, said monitor receptacle being structured to automatically and securely receive the purchase monitoring device therein subsequent to transmission of the pricing and purchase information relative to the items to be purchased from the purchase monitoring device to said data processing means.

14. A purchase checkout station as recited in claim 1 further including payment receiving means structured and disposed to receive an appropriate payment corresponding the totaled cost of all of the items to be purchased as scanned by the portable purchase monitoring device and transmitted to the data processing means.

* * * * *

US-PAT-NO: 5437346

DOCUMENT-IDENTIFIER: US 5437346 A

TITLE: Station for price scanning verifying and selectively
bagging purchase items

----- KWIC -----

Detailed Description Text - DETX (10):

In addition to functioning as load checking means, the scale 61 can also function to provide additional safety and ensure that only the appropriate item is inserted into the bag 51. This is accomplished by using the scale 60 to detect incremental weight increases of items disposed within the bag 51. Specifically, utilizing the scale 61, if the weight increase of weight into the bag 51 does not correspond the weight of the item to be purchased as verified utilizing the verification means 40 and scanned by the purchase monitoring device A, an indication that an illegal substitution has been made can be provided.